BRUHAT BANGALORE MAHANAGARA PALIKE

NAME OF WORK:- Providing Junction Improvement works under SURAKSHA-75 in arterial and sub arterial roads at Chord Road Basaveshwaranagar Junction, Bellary Road, Chowdaiah Road, Vijayanagr Bus Stand Circle, Sirsi circle & Nagrabhavi circle (ORR) in west Zone

DRAFT TENDER SCHEDULE

Item No	Description of Work	Unit	Total Quantity as per Estimation	Rate as per estimate in Rs.	
				In Figures	In Words
1	Dismantling kerb stone by manual means and disposal of dismantled material with all lifts and lead .Complete as per specifications and directions of the Engineer in charge.	Cum	692.38		
2	Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead, Prestressed / Reinforced cement concrete grade M-20 & above.Complete as per specifications and directions of the Engineer in charge.	Cum	2.625		
3	Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead, Dismantling Stone Masonry, Rubble stone masonry in cement mortar. Complete as per specifications and directions of the Engineer in charge.	Cum	32.204475		
4	Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead, Cement Concrete Grade M-15 & M-20 .Complete as per specifications and directions of the Engineer in	Cum	131.202255		
5	Removing & Resetting existing Heavy Duty Cobble/ Interlocking stones/Pavers of thickness 60/75/80/100mm using Cement and 40mm thick sand bed (average thickness) and compacting with plate vibrator to achieve final desired compaction & setting of paver to its final level , including cost of materials, labour and usage charges of machinery Complete as per specifications and directions of the Engineer in charge.. (The cost of new paver/stones required shall be added separately)	Sqm	3823.105258		
6	Removing and resetting of precast kerb stones fixed with CM 1:3 fixed and finished in line as per direction of Engineer in charge.	m	1376.725		
7	Removing and Refixing Stone Slabs of drains and pointing in C.M(1:3). Complete as per specifications and directions of the Engineer in charge.	Sqm	421.74		
8	Removing and Resetting of Footpath Slab. Complete as per specifications and directions of the Engineer in charge.	Sqm	1170.705		

Item No	Description of Work	Unit	Total Quantity as per Estimation	Rate as per estimate in Rs.	
				In Figures	In Words
9	Earth work excavation for Foundation by mechanical means for all works & depth upto 3 m, as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, including dressing of excavated surfaces, disposing off or levelling the excavated earth or sorting & stacking the selected earth for reuse in a radius of 50 m and lift upto 1.5m including cost of labour, tools, usage of machinery & other appurtenaces required to complete the Work. In all kinds of soils Depth upto 3 m. Complete as per specifications and directions of the Engineer in charge.	Cum	449.465575		
10	Earth work excavation by manual means for drains, canals, waste weir, draft, approach channels, key trenches, foundation of Buildings & bridges and such simillar works in all kinds of soils, as per drawing and technical specifications, including setting out, shoring, strutting, barricading, caution lights, removal of stumps and other deleterious matter, excavated surface leveled and sides neatly dressed disposing off the excavated stuff or sorting & stacking the selected stuff for reuse in a radius of 50 m and lift upto 1.5 m including cost of labour, tools & other appurtenaces required to complete the work. .Complete as per specifications and directions of the Engineer in charge.	Cum	1340.517125		
11	Providing and laying in position Cement Concrete for levelling course for all works in foundation. The granite/ trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed, laid in layers not exceeding 150 mm thickness, well compacted using plate vibrators, including all lead & lifts, cost of all materials of quality, labour, Usage charges of machinery, curing, and all the other appurtenances required to complete the work as per technical specifications, Mix 1:3:6 Using 20 mm nominal size graded crushed coarse aggregates. Complete as per specifications and directions of the Engineer in charge.	Cum	1733.781508		
12	Providing and laying in position Cement Concrete for levelling course for all works in foundation. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed, laid in layers not exceeding 150 mm thickness, well compacted using plate vibrators, including all lead & lifts, cost of all materials of quality, labour, Usage charges of machinery, curing, and all the other appurtenances required to complete the work as per technical specifications, Mix 1:3:6 Using 40 mm nominal size graded crushed coarse aggregates.Complete as per specifications and directions of the Engineer in charge.	Cum	250.224		
13	Providing and laying 100mm thick pre-cast cover slabs over Road side drains/ utility ducts/ Rain water harvesting pit of width not exceeding 1000mm using M20 concrete reinforced with TMT bars Fe550 @ 6kg/m2 , Slabs jointed in CM 1:3 proportion and nicely finished Including providing holes in the Cover slabs whenever necessary for easy drainage of surface water including of labour, materials, scaffolding usage of machinery, curing, lead and lift charges etc, Complete as per specifications and directions of the Engineer in charge.	Sqm	1489.455		

Item No	Description of Work	Unit	Total Quantity as per Estimation	Rate as per estimate in Rs.	
				In Figures	In Words
14	Providing and laying in position Cement Concrete for all Sub structures of building, Irrigation works, Sub structure works of bridges, Drain works & other parallel works from 0.50m to 3.50 m height. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticisers, laid in layers, well compacted using needle vibrators, providing weep holes wherever necessary, including all lead & lifts, cost of all materials of quality, confirming to the requirements of relevant IS codes, labour, Usage charges of machinery, curing and all other appurtenances required to complete the work as per technical specifications . M20 Design Mix Using 20 mm nominal size graded crushed coarse aggregates (The cost of steel reinforcement & formwork to be paid separately)Complete as per specifications and directions of the Engineer in charge.	Cum	1.38		
15	Providing and laying in position Cement Concrete for all Sub structures of building, Irrigation works, Sub structure works of bridges, Drain works & other parallel works from 0.50m to 3.50 m height. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticisers, laid in layers, well compacted using needle vibrators, providing weep holes wherever necessary, including all lead & lifts, cost of all materials of quality, confirming to the requirements of relevant IS codes, labour, Usage charges of machinery, curing and all other appurtenances required to complete the work as per technical specifications . M20 Design Mix Using 20 mm nominal size graded crushed coarse aggregates (The cost of steel reinforcement & formwork to be paid separately)Complete as per specifications and directions of the Engineer in charge.	Cum	3.45		
16	Providing and laying in position Cement Concrete for all Foundation works. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticizers laid in finished layers, well compacted using needle vibrators, including all lead & lifts, cost of all materials, quality confirming to the requirements of relevant IS codes, labour, Usage charges of machinery, curing and all the other appurtenances required to complete the work as per technical specifications.M25 Design Mix Using 20 mm nominal size graded crushed coarse aggregates. Complete as per specifications and directions of the Engineer in charge.	Cum	6.132		
17	Providing and laying in position Cement Concrete for all Foundation works. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticizers laid in finished layers, well compacted using needle vibrators, including all lead & lifts, cost of all materials, quality confirming to the requirements of relevant IS codes, labour, Usage charges of machinery, curing and all the other appurtenances required to complete the work as per technical specifications. M25 Design Mix Using 20 mm nominal size graded crushed coarse aggregates. Complete as per specifications and directions of the Engineer in charge.	Cum	3.213		

Item No	Description of Work	Unit	Total Quantity as per Estimation	Rate as per estimate in Rs.	
				In Figures	In Words
18	Providing and laying in position Cement Concrete for all Foundation works. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticizers laid in finished layers, well compacted using needle vibrators, including all lead & lifts, cost of all materials, quality confirming to the requirements of relevant IS codes, labour, Usage charges of machinery, curing and all the other appurtenances required to complete the work as per technical specifications. M25 Design Mix Using 20 mm nominal size graded crushed coarse aggregates. Complete as per specifications and directions of the Engineer in charge.	Cum	8.1		
19	Providing and laying in position Cement Concrete for all Foundation works. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticizers laid in finished layers, well compacted using needle vibrators, including all lead & lifts, cost of all materials, quality confirming to the requirements of relevant IS codes, labour, Usage charges of machinery, curing and all the other appurtenances required to complete the work as per technical specifications. M25 Design Mix Using 20 mm nominal size graded crushed coarse aggregates. Complete as per specifications and directions of the Engineer in charge.	Cum	3.204		
20	Providing and laying in position Cement Concrete for all Foundation works. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticizers laid in finished layers, well compacted using needle vibrators, including all lead & lifts, cost of all materials, quality confirming to the requirements of relevant IS codes, labour, Usage charges of machinery, curing and all the other appurtenances required to complete the work as per technical specifications.M25 Design Mix Using 20 mm nominal size graded crushed coarse aggregates. Complete as per specifications and directions of the Engineer in charge.	Cum	12.6		
21	Steel Fabrication. Supplying, fitting and placing TMT FE 550 / 550D Steel Reinforcement including cost of all materials, machinery, labour, cleaning, straightening, cutting, bending, hooking, laping/welding joints, tying with binding wire / soft annealed steel wire and other ancilary operations complete as per drawing and technical specification.All other type of structures . Complete as per specifications and directions of the Engineer in charge.	tonne	3.9636		
22	Providing Size Stone masonry with hard stone in foundation & plinth with Cement mortar 1:6 (1 cement : 6 coarse sand) Complete as per specifications and directions of the Engineer in charge.	Cum	299.41845		
23	Providing Flush/ Ruled pointing: Pointing on stone work with cement mortar 1:3 (1 cement : 3 fine sand) after raking joints to depth nicely lining, including cost of materials, labour, curing as per specifications and as per directions of Engineer-in-charge.	Sqm	812.518		
24	Supplying and fixing M15 grade precast cement concrete Kerb stones for Roadway, Sidewalls and gutters fixed with CM 1:3 fixed and finsihed in line as per direction of Engineer in charge. (The cost of PCC shall be paid extra)600 x 300 x 150 mm size. Complete as per specifications and directions of the Engineer in charge.	m	2764.765		
25	Painting two coats after filling the surface with synthetic enamel paint in all shades on new plastered concrete surfaces complete as directed by the Engineer in charge of the work.	Sqm	2925.1775		

Item No	Description of Work	Unit	Total Quantity as per Estimation	Rate as per estimate in Rs.	
				In Figures	In Words
26	Providing and laying 60mm thick factory made precast M -30 grade Cement Concrete Paver Block as per IRC SP 63:2018 & IS 15658 for Cycle Tracks & Pedestrian Footpaths of approved shape and colour, laid in required pattern and including over 30mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-incharge. (WMM/WBM Base to be paid separately if necessary as per relevant technical specification) Complete as per specifications and directions of the Engineer in charge.	Sqm	6836.905625		
27	Providing and laying 80mm thick factory made precast M -30 grade Cement Concrete Paver Block as per IRC SP 63:2018 & IS 15658 for Commercial Traffic Axle load repetitions upto 10MSA & for Residential Streets of approved shape and colour, laid in required pattern and including over 40mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge. (WMM/WBM Base to be paid separately as per relevant technical specification)Complete as per specifications and directions of the Engineer in charge.	Sqm	90.4		
28	Providing and laying 100mm thick factory made precast M -40 grade Cement Concrete Paver Block as per IRC SP 63:2018 & IS 15658 for Commercial Traffic Axle load repetitions more than 10MSA upto 20MSA for Industrial Streets, Bus & Truck parking of approved shape and colour, laid in required pattern and including over 40mm thick compacted bed of coarse sand, filling the joints with fine sand etc. all complete as per the direction of Engineer-in-charge. (WMM/WBM Base to be paid separately as per relevant technical specification)Complete as per specifications and directions of the Engineer in charge.	Sqm	397.6		
29	Providing and supplying of sadarahalli grey granite bollards of height 0.9 m and width of 0.45m width, cut to required shape including cost of all materials, labour, transportation etc. Complete as per specifications and directions of the Engineer in charge.	no	450		
30	Providing and laying in position Reinforced cement concrete for all Sub structures of building, Irrigation works, Sub structure works of bridges, Drain works & other parallel works from 0.50m to 3.50 m height. The granite/trap/basalt crushed graded coarse aggregates and fine aggregates as per relevant IS Codes machine mixed with super plasticisers, laid in layers, well compacted using needle vibrators, providing weep holes wherever necesary, including all lead & lifts, cost of all materials of quality, confirming to the requirements of relevant IS codes, labour, Usage charges of machinery, curing and all other appurtenances required to complete the work as per technical specifications. (The cost of steel reinforcement & formwork to be paid separately) M20 Design Mix Using 20 mm nominal size graded crushed coarse aggregates complete as per the direction of Engineer In charge of the work. Complete as per specifications and directions of the Engineer in charge.	Cum	24.5693		
31	Executive Bench- Made out of Sadarahalli grey stone with hand supports with 3 line finishing with arch design with 100mm slabs. Height 90x Length 1500 width 45 cms (Data approved rate)Complete as per specifications and directions of the Engineer in charge.	no	78		

Item No	Description of Work	Unit	Total Quantity as per Estimation	Rate as per estimate in Rs.	
				In Figures	In Words
32	Providing and constructing load bearing wall with Solid Concrete blocks of size 400x200x200mm having block density more than 1800 kg/m3 and minimum compressive strength of 4.00 N/mm2 conforming to IS 2185 (Part - I) - 2005 and constructed with CM 1:4 as per IS 2572:2005 including cost of all materials, labour, scaffolding and curing, usage charges of machinery etc Complete as per specifications and directions of the Engineer in charge.	Sqm	98.05		
33	Providing 18 mm cement plaster in two coats under layer 12 mm thick cement plaster with cement mortar 1:5 (1 cement : 5 coarse sand) and a top layer 6 mm thick cement plaster with cement mortar 1:3 (1 cement : 3 coarse sand) finished rough with sponge to brick masonry including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	Sqm	115.2		
34	Providing 15 mm cement plaster on the rough side of single or half brick wall of mix 1:4 (1 cement: 4 fine sand) including rounding off corners wherever required smooth rendering, providing and removing scaffolding, including cost of materials, labour, curing complete as per specifications and as per directions of Engineer-in-charge.	Sqm	136.712		
35	Providing and laying Polished Sadarahalli Grey Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 20 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1cement : 4 coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing , curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge.	Sqm	551.8725		
36	Providing and laying Polished Granite stone flooring in required design and patterns, in linear as well as curvilinear portions of the building all complete as per the architectural drawings with 18 mm thick stone slab over 20 mm (average) thick base of cement mortar 1:4 (1cement : 4coarse sand) laid and jointed with cement slurry and pointing with white cement slurry admixed with pigment of matching shade including rubbing, curing and polishing etc. all complete as specified and as directed by the Engineer-in-Charge. ** Polished Granite stone slab Black, Cat Eye, River Pink or equivalent. Complete as per specifications and directions of the Engineer in charge.	Sqm	141.752		
37	Finishing walls with textured exterior paint of required shade :Old work (Two coats on existing cement paint surface applied @ 3.28 l/10 m² including preparing the surface after thoroughly cleaning the surface to remove all dirt, dust and foreign matter, cost of materials, labour complete as per specifications and as per directions of Engineer-in-charge	Sqm	115.2		

Item No	Description of Work	Unit	Total Quantity as per Estimation	Rate as per estimate in Rs.	
				In Figures	In Words
38	Providing and constructing un-reinforced plain cement concrete pavement, thickness as per design, over a prepared sub base, with 43 grade cement or any other type as per Clause 1501.2.2 M30 (Grade), coarse and fine aggregates conforming to IS:383:2016:, maximum size of coarse aggregate not exceeding 25 mm, mixed in a concrete mixer of not less than 0.2 cum capacity and appropriate weigh batcher using approved mix design, laid in approved fixed side formwork (steel channel, laying and fixing of 125 micron thick polythene film, wedges, steel plates including levelling the formwork as per drawing), spreading the concrete with shovels, rakes, compacted using needle, screed and plate vibrators and finished in continuous operation including construction joints, primer, sealant, curing of concrete slabs for 14-days, and water finishing to lines and grade as per drawing and technical specification clause 1501 with all lead, lifts, loading & unloading charges, cost and conveyance of all materials, labour, equipments etc., complete. as per the directions of the Engineer-in-charge of the work.	Cum	252.039		
39	Filling approved earth (excluding rock) in trenches, plinth, sides of foundations and other similar works etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m. Complete as per specifications and directions of the Engineer in charge.	Cum	22.176		
40	Fabricating providing and erecting in position of MS Hot Dip galvanized sq hallow poles of 132 x132 heavy gauge length 3000mm with MS Hot Dip galvanized grill work as per approved design and drawing of chief architect using 12 x75mm galvanized flat for alround frame and 20 x 20mm galvanized forged ornamental arrow head in top and buttom the work is inclusive of throughing flat square rods placing welding all the joints including griding finishing 2 coats of anticorrossive paint over one coat of metal primer the rate is inclusive of all materials all items of work cost painting welding cutting griding with lead and lift as per specifications including loading and unloading with cost and conveyance of all materials labour machinery and incidental charges for the successful completion of the work as per direction of engineer in charge of work	Sqm	349.56		
41	Providing and fixing of Ornamental Granta Pilar of overall height of 1250mm 200x200mm, Octagonal to a height of 820mm and carving design at bodom as shown in drawing and 200mm respectively as per the approved Design and drawing including quarry cutting to the required sine and transporting the same from quarry to work spot including loading and un loading with all lead and it etc. complete as per design and drawing The work shall be carried out as per design and drawing Family fixed to the ground by means of properly designed foundation of size 300mm x 300mm x 300mm in 1:153 ratio cement concrete The work shall be carried out a per the engineers in charge	no	111		

Item No	Description of Work	Unit	Total Quantity as per Estimation	Rate as per estimate in Rs.	
				In Figures	In Words
42	Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners, stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in- charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.) including cost of materials, labour, usage charges of machinery complete as per specifications and as per directions of the Engineer-in-Charge	Kg	3474.144		
43	Supply and manufacturing of brass name board in kannada letters using 1mm sheet 304 grade CNC cutting 1.5" Box type Titanium Gold letters of different size of 8", 10" 12", 14", and 21", at the rate for one running Inch. The work includes cost of all materials cost of all labour charges, transportation charge with all lead and lift omplete. as per the directions of the Engineer-in-charge of the	Inch	623.856		
44	Providing and applying tack coat with RS1 Bituminous Emulsion using emulsion pressure distributor at the rate of 0.20 kg/m2 on the prepared bituminous surface cleaned with mechanical broom. Complete as per specifications and directions of the Engineer in charge.	Sqm	602.35		
45	Providing and laying Bituminous Concrete with 100 TPH capacity hot mix plant batch type using crushed aggregates of specified grading, premixed with bituminous binder VG-30, @ 5.4 per cent of mix and filler, transporting the hot mix to work site, laying with mechanical paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 507 complete in all respects. Complete as per specifications and directions of the Engineer in charge.	Cum	24.094		
46	Providing Speed Breakers/Raised pedestrian crossings in Trapezoidal section with 2.5 m Top width and transition length of 0.8 m length and height of 0.1 m as per IRC 99:2018 using Bituminous Macadam (BM) Gr II and Semi Dense Bituminous Macadam (SDBC) Gr II for entire formation width & WBM Gr II for Shoulder hump portion only (150 mm thick), completing with road marking paint with applied thermoplastic compound with reflecting glass beeds on bituminous surface and providing 2 Nos. retro reflective traffic signs as per IRC 67 -2022. Intermediate lane with formation width of 7.50 m .	no	1		
47	Providing & fixing Polymer rubberised factory made Black & Yellow coloured Speed retarders/Breakers with width 350mm & Height 50mm as per IRC 99:2018 with load carrying capacity upto 30t in local streets, parking arena and in areas with speed limit of 20 kmph as per direction of Engineer in-charge.	m	111.93		
48	Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 g/m2 area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35:2015.The finished surface to be level, uniform and free from streaks and holescomplete as per the direction of Engineer In charge of the work	Sqm	1300		

Item No	Description of Work	Unit	Total Quantity as per Estimation	Rate as per estimate in Rs.	
				In Figures	In Words
49	Providing and applying Cold plastic paint two component rolled on surfacing material solvent free, high build two pack seamless,tough,skid resistant, material with property of attaining 2mm thickness in single coat application white(or as requiredcolour)based on glass and colour retaining acrylic cross linking resin system for coloured road surfacing including surface cleaning and cost of all material etc. complete. (All inclusive on bitumen or concrete surface) work shall carried out as per IRC 35-2015 clause 2.2)Complete as per specifications and directions of the Engineer in charge.	Sqm	1714.721		
50	Supplying and Fixing of Molded Shank Raised Pavement Markers / Cat's Eye made of polycarbonate and ABS moulded body and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face and shall support a load of 16000 kg tested in accordance to ASTM D 4280 Type H and complying to Specifications of Category A of MORTH Circular No RW/NH/33023/10-97 DO III Dt 11.06. 1997. The height, width and length shall not exceed 50 mm, 100 mm and 102 +/- 2 mm and with minimum reflective area of 13 cm2 on each side and the slope to the base shall be 35 +/- 5 degree. The strength of detachment of the integrated cylindrical shanks, (of diameter not less than 19 +/- 2 mm and height not less than 30+/- 2 mm) from the body is to be a minimum value of 500 Kg. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive as per manufacturer's recommendation and complete as directed by the engineer.The contractor shall submit a two year warranty for satisfactory field performance including stipulated retro-reflectance of the reflecting panel, to the Engineer. Complete as per specifications and directions of the Engineer in charge.	no	1509		
51	Supplying and installation of Flexible Median Marker (road way indicators, hazard markers) as per IRC 79-2019 for improving median visibility of the road.It shall be made from a combination of tough, high impact resistant engineering thermoplastic material with edge sealed and U shape structure having rebound/ bounce back property having overall height, width and body thickness not less than 180mm, 120mm and 6.5 mm respectively. The reflective sheeting shall be of Type XI Flourescent Yellow as per IRC : 67 and it should be on both the face. The logo of the manufacturer shall be embossed on either side of the body in the injection molding process . The body of FMM shall bounce back to its original position after 750 numbers of hits using pendulum of 1.8 Kg conforming to ASTMD 256. It shall be fixed by a combination of epoxy adhesive and grouting/Drilling on concrete medians or properly constructed solid medians. Complete as per specifications and directions of the Engineer in charge.	no	372		
52	Providing and erecting direction and place identification retroreflectorised sign as per IRC:67:2022 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick or Aluminium composite material sheet with overall thickness of 4mm with area exceeding 0.9 m2 fixed over back support frame of min 40 x 40 x 5mm angle mounted on a mild steel circular pipe 65 NB, firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing Direction and Place Identification Signs with size more than 0.9 m2 size Board.Complete as per specifications and directions of the Engineer in charge.	Sqm	45		

Item No	Description of Work	Unit	Total Quantity as per Estimation	Rate as per estimate in Rs.	
				In Figures	In Words
53	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC:67:2022 made of Class B Type IV retro reflective sheeting fixed over 2 mm thick aluminium sheeting vide clause 803.1, 3mm/4mm thick Aluminium composite material sheet depending on the size of the sign fixed over the back support frame of min 25 x 25 x 3mm angle mounted on a mild steel circular pipe 65 NB, 3.2 mm thickness firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing.The sign shall be maintained as per section 12 of IRC:67:2022. 90 cm equilateral triangle . Complete as per specifications and directions of the Engineer in charge.	Each	145		
54	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC:67:2022 made of Class B Type IV retro reflective sheeting fixed over 2 mm thick aluminium sheeting vide clause 803.1, 3mm/4mm thick Aluminium composite material sheet depending on the size of the sign fixed over the back support frame of min 25 x 25 x 3mm angle mounted on a mild steel circular pipe 65 NB, 3.2 mm thickness firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing.The sign shall be maintained as per section 12 of IRC:67:2022. 90 cm circular.	Each	125		
55	Supply and installation of retro- reflective Chevron signboards of 600x450mm made out of cube corner micro prismatic grade sheeting confirming to Type XI standards of IRC:67:2022 & ASTM D 4956-09 specification & fixed over 3 mm thick Aluminium Composite Panel sheet having minimum 0.30 mm thick aluminum skin on both sides & fixed over back support frame of 25x25x 3mm MS angle frame. Supported on 75 mm dia OR 75x75x6mm Mild steel with clear height of not less than 2.1 m from the ground level to the bottom of the Sign board & 60 cm below ground level. The sign post should be painted with one coat of red oxide paint and two coats of synthetic enamel paint of black and white colour with bands of 30 cm height, firmly fixed to the ground by means of foundation with M 20 grade cement, concrete foundation size of 45 cm x 45 cm x 60 cm including cost & conveyance of all materials, equipment,machinery & Labour with all leads and lifts for satisfactory completion of the work as directed by Engineer incharge.	no	80		
56	Supplying and installation of delineators (road way indicators, hazard markers, object markers), 80-100 cm high above ground level, painted black and white in 15 cm wide strips, fitted with 80 x 100 mm rectangular or 75 mm dia circular reflectorised panels at the top, buried or pressed into the ground and conforming to IRC-79-2019 and the drawings .Complete as per specifications and directions of the Engineer in charge.	Each	150		
57	Supply and erection of 14 Feet Height Street Light Pole 14 Feet Height Street Light Pole on suitable cement concrete foundation with 2.5 Feet height dia 95 mm cast iron decorative round pedestal as per design weighing not less than 37Kgs, the pedestal shall be fitted with Class 'C' G.I.Pipe 7 Feet height 75 mm outer dia and 7 feet height top pieceouter dia of 65 mm fixed by measure of threading/welding/coupling complete. Complete as per specifications and directions of the Engineer in charge.	Each	129		

Item No	Description of Work	Unit	Total Quantity as per Estimation	Rate as per estimate in Rs.	
				In Figures	In Words
58	Supply of LED pole mounting type post top lantern with pressure die cast aluminium housing body for optimal thermal dissipation. Lamp compartment comprising of anti glare clear diffuser with Injection moulded polycarbonate/ clear glass material, delivering superior light outputRated life Burning Hrs 50000 hr@ Lumen Maintenance of 70%, CCT > 5500K, IP 66 optical and electrical compartment & impact resistance of complete luminaire >IK08. Power Factor>0.9 with mains, Surge Protection- Min 5KV along with Over voltage/Overload, short circuit/ miss-wiring protection. Compatible for pole mounting with outer dia of 40mm to 50mm. Universal Voltage driver to operate wide voltage range from 100V to 270V 50/60Hz application. Compliance to IS 10322/1 EC 60598, LM 79 & LM 80 Adherence with RoHS. UL approved MCPCB LED Efficiency>1301m/w, nominal CRI >75. Luminaire manufacturer should have in- house facility accredited by NABL/CPRI & any Government certified agency & Design & Development facility certified by ISO 9001:2008. Housing with supplier word mark /name shall be Engraved / Embossing on the die cast housing/ Body part Warranty of 2 Years against anymanufacturing defect working under standard electrical conditions as mentioned above should be given by LED manufacturer & Cree/Nichia/ Lumileds/Osram make LED Source.Complete as per specifications and directions of the Engineer in charge.	Each	129		
59	Fixing charges of post top/ Gate/ Garden fitting /LED on the existing CI / GI or any other pipe using required size of reducer, wiring using suitable wires. Complete as per specifications and directions of the Engineer in charge.	Each	129		
60	LT UG Cable. 2.5 to 25 Sqmm . Complete as per specifications and directions of the Engineer in charge.	Km	2.972		
61	LT UG Cable. Heat shrinkable Straight Through Joint. 2.5 to 25 Sqmm. Complete as per specifications and directions of the Engineer in charge.	Set	24		
62	4 Core, 16 Sqmm, 30 No GI Wires (1.6 mm) Complete as per specifications and directions of the Engineer in charge.	Km	2.972		
63	LABOUR for Aerial Bunched Conductor & Accessories. Stringing of 11 kV grade Aerial Bunched 3 Core cable of XLPE insulation of size 3x95 Sqmm + 1x70 Sqmm with Insulated Messenger Wire . Complete as per specifications and directions of the Engineer in charge.	Km	5.934		
64	Digging of Pit 1.8 Mtr depth for errection of 9 to 10 Mtr Long Steel/RCC/PSCC supports as per approved Drawing.Hard Soil . Complete as per specifications and directions of the Engineer in charge.	Per pit	24		
65	Supplying and drawing Flexible Multicore Cable manufactured with electrolytic grade flexible copper with low conductor confirming to IS:8130-1984 and (Virgin) PVC insulation sheathed suitable for working voltage upto 1100Volts as per IS-694:199. 3C X 4Sq.mm Copper Flexible. Complete as per specifications and directions of the Engineer in charge.	m	4572		
66	Supplying and fixing Moulded Case Circuit Breaker (MCCB) over the existing wood/panel board using necessary screws, bolts, nuts, necessary phase separators, handle and wiring complete. Protection of Overload and Short circuit with thermal Magnetic/Micro processor release and Earth Fault as per IS 13947. (Icu = Ics). THREE POLE.200Amps 36kA.Complete as per specifications and directions of the Engineer in charge.	Each	11		

Item No	Description of Work	Unit	Total Quantity as per Estimation	Rate as per estimate in Rs.	
				In Figures	In Words
67	Supplying and fixing miniature circuit breakers on existing MCB distribution boards using necessary fixing materials and 'C' Type curve, indicator ON/OFF, energy cross-3 with Short circuit breaking capacity of 10K and complete wiring as required confirming to IEC 60898.6-32Amps TPN. Complete as per specifications and directions of the Engineer in charge.	Each	21		
68	For Distribution Transformer Centre (DTC) MS Box for housing the ETV Meter 3 Phase 4 Wire 5 Amps, with associated LT CT 0.5 Accuracy Class, ring type, with wiring Clamps, B&N and all other accessories required. (EXCLUDING ETV METER) With CT Ratio 800/5 for 500 kVA DTC .Complete as per specifications and directions of the Engineer in charge.	Set	67		
69	Supplying and fixing of Modular MCB Devices (Tripper) With Breaking capacity of 6kA.16 - 32 A SP . Complete as per specifications and directions of the Engineer in charge.	Each	35		
70	Supply and Installation of 200 watt RGB focus LED light with 2 way connector for each light. Technical Specification • Luminaire made up of die cast dark grey powder coated aluminium alloy with non corrosive SS fasteners with low copper content. • Luminaire prewired with LED driver and Suitable for operation on 240V, 50Hz single phase ac supply. IP67 , mechanical resistance IK08. Complete as per specifications and directions of the Engineer in	Each	33		
71	Supply and Installation of 50 watt UPLIGHTERS LED light with 2 way connector for each light. Technical Specification • Luminaire made up of die cast dark grey powder coated aluminium alloy with non corrosive SS fasteners with low copper content. • Luminaire prewired with LED driver and Suitable for operation on 240V, 50Hz single phase ac supply. IP67 , mechanical resistance IK08. Complete as per specifications and	Each	36		
72	Supply and Installation of 10watt focus WALL LED light with 2 way connector for each light. Technical Specification • Luminaire made up of die cast dark grey powder coated aluminium alloy with non corrosive SS fasteners with low copper content. • Luminaire prewired with LED driver and Suitable for operation on 240V, 50Hz single phase ac supply. IP67 , mechanical resistance IK08. Complete as per specifications and directions of the Engineer in	Each	33		
73	Supplying of Red soil (New earth filling)Supply of good quality Red soil for gardening and growing of plants, shrubs, etc., including the % weightage given to B.B.M.P area. Complete as per specifications and directions of the Engineer in charge.	Cum	331.3685		
74	Digging pits of size 0.75m x 0.75m x 0.75m and filling upto 50% of the pits with top excavated soil and remaining 50% with sand (0.035 cum), FYM (0.070 Cum), Red earth (0.105cum), (i.e, in the proportion of 1:2:3) and planting with well established plants. Exclusive of cost of plants and inclusive of ingredients.Complete as per specifications and directions of the Engineer in charge.	Each	59		
75	Cost of the plant. Complete as per specifications and directions of the Engineer in charge.	Each	59		
76	Developing the area for shrubs by digging to a depth of 0.45m, filling 50% with sand (0.0375 cum), FYM (0.075 cum), Red earth (0.21), (i.e, in the proportion of 1:2:3) and planting with well established plants (8 plants per sqm) exclusive of cost of plants and inclusive of ingredients. Complete as per specifications	Sqm	332.91		

Item No	Description of Work	Unit	Total Quantity as per Estimation	Rate as per estimate in Rs.	
				In Figures	In Words
77	Cost of the plant. Complete as per specifications and directions of the Engineer in charge.	Sqm	332.91		
78	Development of Lawn	Sqm	618.56		
a	Scraping and Removing top layer soil, removing top layer of soil, removing unwanted debris, grass, along with excavated earth to a distance of 500m from the spot, including lead, left loading and unloading charges (1x1x0.15m)				
b	1st Digging for Lawn : Earthwork digging including removing weeds, debris if any and breaking of clumps watering etc., to a depth of				
c	2nd Digging for lawn : Digging for second time and removing weeds if any miner leveling to a depth of 0.45m				
d	Soil filling for lawn : Supply and stocking good quality red earth etc., for filling the top layer to a depth of 0.15m (1x1x0.15m)				
e	Providing sand, Fym and red earth in the ratio of 1:3:6 and spreading to a depth of 7.5cm at the required site				
f	Chemical Fertilizer : Super Phospates (50gm/sqm : Rs 0.1.00/sqm) Neem Oil cake (250gm/sqm: Rs 6.00sqm), Bone meal (250gm/sqm: Rs 4.00/sqm), Potash (50 gm/sqm: Rs 1.00/sqm), Furodon (25gm/sqm: Rs 2.00 /sqm), Ammonium Sulphate (100 gm/sqm :Rs 2.00/sqm).				
g	Supply of Lawn Grass : Turf				
h	Other Charge : Cost towards Dibbling/laying of lawn inclusive of mixing of ingradients, application of manure and spreading (5x5 cm)				
79	Loading and Unloading of Stone Boulder/Stone aggregates/Sand/Kankar/Moorum. (Tipper 5.5 m3)Complete as per specifications and directions of the Engineer in charge.	Cum	2648.39443		
80	Cost of Haulage Excluding Loading and Unloading Taking output 18t load and lead 10 km = 180 t.km. Complete as per specifications and directions of the Engineer in charge.	t.km	3389.94887		

Executive Engineer
BBMP